

REMARKS

Claims 1, 4-8 and 10-11 are pending in this application. The Office Action rejects claims 1, 4-8 and 10-11 under 35 U.S.C. §103(a). By this Amendment, claims 1, 4-8 and 10-11 are amended. Support for this amendment may be found in the present specification at, for example, original claims 1, 4-8 and 10-11. No new matter is added.

I. Rejection under 35 U.S.C. §103(a)

Claims 1, 4-8 and 10-11 are rejected under 35 U.S.C. §103(a) as having been obvious over Kang et al. (U.S. Patent No. 6,468,718) in view of Mizutani et al. (U.S. Patent Application Publication No. 2003/0198894) or Bonk et al. (U.S. Patent No. 4,731,273 or U.S. Patent No. 4,751,269). Applicants respectfully traverse the rejection.

Applicants respectfully submit that the combination of Kang with Mizutani does not teach all of the features of amended claim 1. Claim 1 recites an anti-reflecting coating forming composition comprising the recited compound in an amount of 50 mass% or more in a solid content of the composition. Applicants respectfully traverse the Office Action's assertion that "the materials of reference do teach that the crosslinking agent is present in the composition from 3- 70%, preferably 5-50% of the total solid content of the *resist* composition, which meets the instant claim limitations." (Emphasis added; Office Action, page 3). Specifically, Applicants traverse this assertion on two grounds.

First, as the Office Action states, the range recited by Mizutani at paragraph [0276] is with respect to the *resist* composition. However, the present claim 1 does not claim a resist composition; claim 1 recites an *anti-reflecting coating* forming composition. Applicants respectfully submit that the anti-reflective coating is an entirely different component of a lithography system than the resist. Specifically, as is known to a person having ordinary skill in the art of lithography and as is described in the instant specification at least at paragraph

[0002], the anti-reflective coating is applied "between the photoresist and the substrate to be processed." In this way, a teaching regarding the composition of the resist has nothing to do with the composition of the anti-reflective coating.

Additionally, a person having ordinary skill in the art would not use a resist composition as an anti-reflective coating for at least two reasons. First, the anti-reflective coating must not intermix with the resist layer (present specification at paragraph [0004]). Second, as is known to a person having ordinary skill in the art and is discussed in the present specification at paragraphs [0008] and [0063], the anti-reflective coating must have a higher dry etch rate than the resist.

Therefore, a person having ordinary skill in the art would not have combined the teachings of Mizutani at paragraph [0276] with the anti-reflective coating taught by Kang because Mizutani only teaches including 3 to 70% of the crosslinking agent "base[d] on the total solid content of the negative *resist* composition" and nowhere teaches using either those particular crosslinking agents, or such agents in the amount of 3 to 70%, *as an anti-reflective coating*.

Second, Applicants also traverse the rejection because Kang specifically teaches away from including cross-linking agents in the amounts taught by Mizutani at paragraph [0276]. Kang at column 10, lines 15-18 states "these cross-linking agents or auxiliaries are desirably added in an amount of 0.1 to 50% by weight *based on the weight of the radiation absorbing polymer*." (Emphasis added). As a person having ordinary skill in the art would understand, this teaching means that the crosslinking agent is added in an amount of at most 33% based on the total solid content of the composition. (I.e. if the solid content includes no other components aside from the radiation absorbing polymer and the crosslinking agent, and the crosslinking agent is half the weight of the polymer, then the weight percent of the crosslinking agent is $0.5/(1 + 0.5) = 33\%$ of the total solid content.)

In contrast, the presently claimed anti-reflective coating forming composition includes the recited compound in an amount of greater than 50% by weight based on the total solid content of the composition. This range is vastly different from the range as taught by Kang, such that a person having ordinary skill in the art would not expect these ranges to be so close as to have similar properties. See MPEP 2144.05. In other words, Kang specifically teaches away from including the cross-linking agent in the amounts higher than 33% by weight based on the total solid content, because doing so would dilute the radiation absorbing polymer taught by Kang such that a person having ordinary skill would not have expected the resulting composition to be effective as an anti-reflective coating.

Finally, Bonk does not overcome this deficiency, as Bonk merely discloses adhesive resins, not anti-reflective coatings. Furthermore, Bonk also does not teach including the recited compounds in an amount of greater than 50% by weight, but instead merely discloses including a crosslinking agent in an amount of 0.8 to 10% by weight (column 3, line 7).

Therefore, claim 1 would not have been obvious for at least the reason that the cited references, taken separately or together, do not teach an anti-reflective coating forming composition that comprises the recited compound in amounts of greater than 50% by weight based on the total solid content of the composition. The teachings of Mizutani at paragraph [0276] cannot properly be combined with the teachings of Kang because (1) Mizutani refers to the *resist*, not an anti-reflective coating, and the composition of the anti-reflective coating *must* be different from the resist in order for it to have any effect (see the present specification at paragraph [0002]); and (2) Kang specifically teaches away from the weight range taught by Mizutani.

Thus, independent claim 1 would not have been obvious over the cited references, and so is patentable. Accordingly, dependent claims 4-8 and 10-11 are also patentable for at least the reason that claim 1 is patentable.

Reconsideration and withdrawal of the rejection are respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Enclosure:
Petition for Extension of Time

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